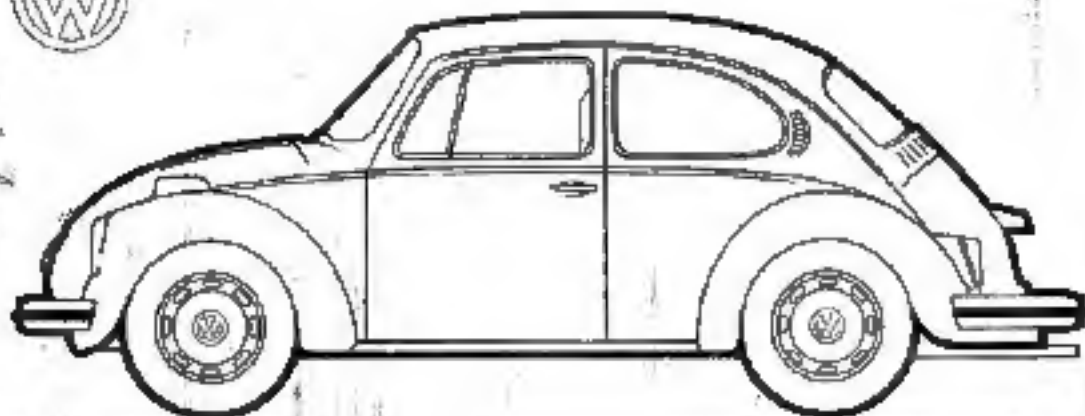


Volkswagen Owner's Manual: Operation and Maintenance

Type 1



Owner:

Last name

First name

(initial)

Street

Town

State

Zip code

Area code

Tel. No.

Volkswagen Owner's Manual: Operation and Maintenance

1973 Models



Volkswagen
Sedan 111



Volkswagen
Sedan 113



Volkswagen
Convertible

Volkswagenwerk Aktiengesellschaft

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The VOLKSWAGEN OWNER'S MANUAL consists of two major parts: operation description and Diagnosis & Maintenance record.

The first part acquaints you with your Volkswagen Warranty and the operation of your car. It also gives you information on fuel, oil, lubrication, plus technical data.

The second part deals with the maintenance of your Volkswagen. It explains what the VOLKSWAGEN DIAGNOSIS and MAINTENANCE is all about, and how to keep your Volkswagen in top driving condition. Check the mileage chart at the end of this manual. It will tell you when to bring your car to your Authorized Volkswagen Dealer for periodic oil change, diagnosis and maintenance services.



The first maintenance service at 800 miles is free of charge (you only pay for engine and transmission oil).

You are further entitled to free diagnosis services at 6,000, 12,000, 18,000 and 24,000 miles.

Always have your Volkswagen Owner's Manual with you when you take your car to an Authorized Volkswagen Dealer for service... It provides your Service Advisor with the information he needs and enable him to make the necessary entries for you.

Please read this manual before you drive your new Volkswagen. Acquaint yourself with its features, and know how to operate it more safely... because the more you know about it, the more you will enjoy driving your Volkswagen.

113

Pictures and text in this manual are based on the 1973 Volkswagen Sedan 113 with Manual Transmission. Where the controls, equipment and technical data of the Volkswagen Sedan 111, the Automatic Stick Shift and the Volkswagen Convertible differ considerably, we will point this out in the text.

Various items shown or described in the manual may be options on certain models. Check with your Authorized VW Dealer on available options or accessories.

It has always been Volkswagen's policy to continuously make technical improvements; therefore, the right is reserved to make changes at any time during the model year without notice.

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Dear VW Owner:

A lot has gone into the manufacture of your Volkswagen including advanced engineering techniques, rigid quality control and demanding inspections. The engineering and safety features that have gone into your VW will be enhanced by . . . you.

the safe driver

- who knows his vehicle and all the controls,
- who maintains his vehicle properly,
- who uses his driving skills wisely.

Because safe driving is important to you, we urge you to read this manual carefully, to maintain your VW properly and to follow the check list shown on this page whenever you use your VW.

Before getting behind the wheel:

- 1—Make sure that the tires are inflated correctly.
- 2—Watch the tread depth indicator on the tires. Look for bruises and wear.
- 3—See that all windows are clean and unobstructed.
- 4—Check that headlight and tail light lenses are clean.
- 5—Check that all lights are functioning properly.
- 6—Check turn signal lamps and indicator light (ignition on).

In the driver's seat:

- 1—Position seat properly for easy reach of controls.
- 2—Adjust inside and outside mirrors for unobstructed rear view.
- 3—Fasten safety belts.
- 4—Check brake warning light when starting the engine.
- 5—Check brake operation.
- 6—Make sure that all doors are closed securely and locked.

And when you are on the highway:

- 1—Always drive defensively. Expect the unexpected.
- 2—Use signals to indicate turns and lane changes.
- 3—Turn on headlights at dusk.
- 4—Follow at a safe distance. A good rule of thumb is to allow a minimum of one car length for each 10 mph of speed.
- 5—Reduce speed during night hours and inclement weather.
- 6—Observe speed limits and obey highway signs.
- 7—When tired, get off the highway, stop and take a rest.
- 8—When stopped or parked, always set the parking brake.
- 9—When stalled or stopped for repairs, move the car well off the road. Set the emergency flasher and use road flares or other warning devices to warn other motorists.

TYPE PASSENGER CAR
 MANUFACTURED BY VOLKSWAGENWERK AG (month/year)
 THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
 VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANU-
 FACTURE SHOWN ABOVE.
 GVWR LB. 0000 (chassis number)
 GAWR LB. FRONT 0000/REAR 0000

This sticker is your assurance that your 1973 Volkswagen complies with all U.S. Federal Motor Vehicle Safety Standards which were in effect at the time the vehicle was manufactured. You can find this sticker on the left doorjamb.

The sticker also shows the month and year of production and the chassis number of your car (perforation) as well as the Gross Vehicle Weight Rating and the Gross Axle Weight Rating.

2

Vehicle Identification

The identification plate

is the "birth certificate" of your Volkswagen. It is located under the front hood next to the hood lock.

On the Volkswagen Sedan 111, the plate can be found in the spare wheel well.



The plate shows such information as manufacturer's name, place of origin, model, weights and "Fahrzeug-Nr." which is the chassis number of your car.

The chassis number

is also located on the instrument panel on the driver's side so that it is visible from the outside through the windshield. This is for your protection ... to aid in the apprehension of car thieves and the recovery of stolen vehicles.



The chassis number is also stamped on the frame tunnel under the rear seat.

The engine number

is stamped on the generator support flange.



Keys

Your Volkswagen comes with two sets of keys:

The key with the elongated head is for the doors and the ignition/steering lock.



The key with the round head is for the glove compartment only. The glove compartment of the VW Sedan 111 does not have a lock.



4

If the door, with the locking knob or locking lever depressed, closes by itself, the locking device will disengage automatically. We provided this additional safety feature so you won't be locked out if the door should slam shut while the key is still inside the car.

To lock and unlock doors from the inside —

depress or pull out the locking device. Since your Volkswagen is almost air tight it will be easier to close the door if you open a window slightly.

The locking lever on the VW Convertible looks like this:



Do not invite car theft

by leaving your car unattended with the key in the ignition lock. Take the key with you and lock the doors.

A buzzer will remind you when you open the driver's door and the key is still in the ignition lock.

It is a good idea to keep a record of your key numbers in your wallet together with your license. If you should lose a key, your Authorized VW Dealer will thus be able to quickly secure a replacement key for you.

Windows

We recommend you do not put decals or other signs on the windows of your car that will interfere with the driver's vision.

You can lower and raise the windows in the front doors by means of windows. We cushioned the knobs for your safety.

To open the vent window, turn knob into driving direction, move locking lever forward and push out window.

To make closing the vent window easier, we suggest you first push on the forward part of the vent window so that it fits snugly against the weatherstripping. Then grasp the knob, and move the lever back to lock it in place.



Doors

Always drive with locked doors to prevent inadvertent opening of a door from the inside, especially with smaller children in the car.

To lock and unlock doors from the outside

You can lock and unlock your car with a key, of course.

But you can also lock it without a key.

First push in the inside locking knob on the upper door panel. Then depress the plunger in the outside door handle as you close the door.

On the VW Convertible depress the locking lever in the inside door handle.



Seats

We recommend you do not adjust the driver's seat while driving. Your seat may suddenly jerk forward or backward, which could result in loss of control.

Your Volkswagen has adjustable front seats with built-in headrests.

Seat adjustment

To move the seat forward and backward pull the lever on the inboard side of the seat. Now slide the seat to the desired position. Let the lever go, and move the seat slightly back and forth to make sure it is securely engaged.



5

Safety belts

Backrest adjustment

To adjust the backrest, lift the lever at the outboard side of the seat cushion as you exert slight body pressure in the direction desired. Let the lever go to lock the backrest in position.

We have installed a lock on the side of the backrest.

You can disengage this lock by pulling up the lever. Tilt the backrest forward and out of the way for easy access to the rear seat and rear luggage compartment.



6

A safety belt is provided for each seating position in your Volkswagen. For your protection, **fasten your safety belt before driving off and wear it at all times while the car is in motion.**

Safety belts that were subjected to excessive stretch forces during an accident should be replaced.

An **audio-visual warning system** for the front seats will remind the driver and front passenger to put on their safety belts. The buzzer will sound and the FASTEN SEAT BELTS sign on the dashboard will light up as soon as a gear is engaged. The warning system will also be activated if the passenger in the front passenger seat is not wearing a safety belt.

Make sure the belt of the unoccupied passenger seat is fully wound up on its retractor so that the belt tongue is in its stowed position behind the assist strap on the doorpost. This reduces the possibility of its becoming a striking object in case of a sudden stop.

Do not strap in more than one person in each belt.

Safety belts for front seats

The front seats are equipped with lap/shoulder belts with an automatic locking retractor. The belt adjusts automatically to your size and movements as long as the pull on the belt is slow. **A sudden motion locks the belt.** The automatic locking mechanism in the retractor will also lock the belt when driving down a steep hill or in a curve, and when the car's speed is reduced.



A shoulder belt should not be worn by a person less than 4'7" in height, because it would not be in its most protective position, and therefore may increase the possibility of injury in a collision.

To fasten your lap/shoulder belt, grasp the belt tongue and pull the belt in a continuous slow motion across your chest and lap. Insert the belt tongue into the corresponding anchor housing on the center tunnel and push down until it is securely locked with an audible click. **Belts should not be worn twisted.**

To unfasten the belt, push in the release marked PRESS on the corresponding anchor housing. The belt tongue will spring out of the anchor housing.

To stow the lap/shoulder belt, guide the belt tongue to its stowed position behind the assist strap on the door post. For the passenger's comfort, the retracting forces of the belt are relatively low and winding up of the belt may be slow. Make sure the belt is fully wound up on the retractor.

Safety belts for rear seats

The rear seats are equipped with lap belts with an automatic retractor. If you have pulled out too much of the belt, the retracting mechanism will take up the slack until the belt fits snugly across your lap and will stay locked in this position.



To fasten your lap belt, grasp the belt tongue on the outboard side of the seat, and pull it across your lap and insert the tongue in the inboard buckle. Push in until you hear a click to be sure the belt is locked securely.

To unfasten the belt, push in the release marked PRESS in the buckle.

To stow the belt, guide the belt tongue to the retractor. Make sure the belt is fully wound up on the retractor. Belt tongue and buckle should always be kept on top of the seat for ready use. Do not permit them to get caught under the seat.

Belt care

Keep safety belts clean. If cleaning is necessary, wash them with a mild soap solution, without removing them from the car.

Do not allow the belts to retract until they are completely dry.

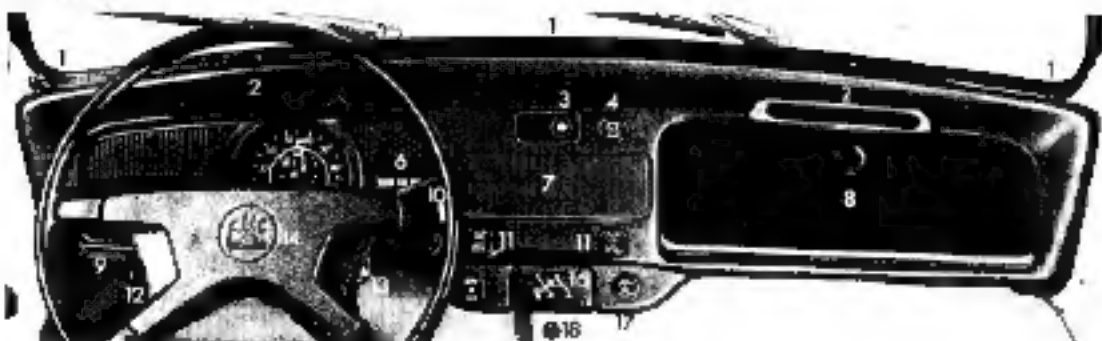
Do not bleach or dye safety belts. Do not use any other cleaning agents. They may weaken the webbing.

Check buckles and retractors for proper function. Check belt webbing and bindings for damage.

7

Instrument panel

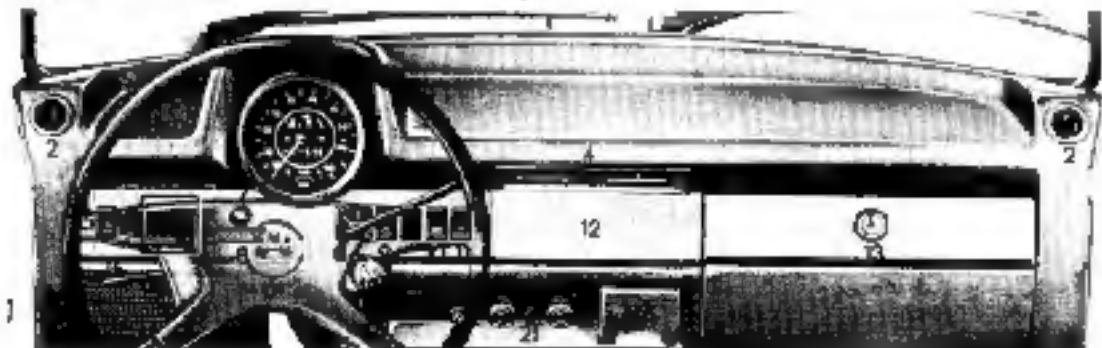
VW 111



1 - Vents for heating/defrosting (there are 3)	23	11 - Fresh air control knobs (2)	25
2 - Vents for heating/defrosting and fresh air ventilation (there is a pair on each side)	23/26	12 - Fuse box	41
3 - Brake warning light	11	13 - Ignition/steering lock	10
4 - Headlight switch	11	14 - Horn	
5 - Speedometer dial with fuel gauge and warning lights	12	15 - Control knob for Auxiliary Heater (optional equipment)	27
6 - Safety belt warning light	6	16 - Ashtray	15
7 - Plate over radio aperture		17 - Emergency flasher switch	10
8 - Glove compartment	20	18 - Spot light to illuminate the heater levers between the front seats	22
9 - Turn signal and headlight dimmer switch lever	13		
10 - Windshield wiper/washer lever	13		

8

VW 113 and Convertible



1 - Vent for heating/defrosting and fresh air ventilation (over the full width of the windshield)	22	11 - Emergency flasher switch	10
2 - Vents for heating/defrosting and fresh air ventilation for the front side windows (there is one on each side)	23	12 - Plate over radio aperture	
3 - Speedometer dial with fuel gauge and warning lights	12	13 - Glove compartment, lockable	20
4 - Vents for fresh air ventilation (2)	24	14 - Loudspeaker grille	
5 - Headlight switch	13	15 - Turn signal and headlight dimmer switch lever	13
6 - Instrument illumination	11	16 - Windshield wiper/washer lever	13
7 - Brake warning light	11	17 - Horn	
8 - Safety belt warning light	6	18 - Ignition/steering lock	10
9 - Control switch for Auxiliary Heater (optional equipment)	27	19 - Knob for fresh air fan	24
10 - Switch for rear window defogger (VW Sedan 113 only)	14	20 - Fresh air control knobs (2)	24
		21 - Spot light to illuminate the heater levers between the front seats	22
		22 - Ashtray	15

Ignition/steering lock

The steering is equipped with an anti-theft ignition lock.

Wear safety belts. Make sure the gearshift lever is in Neutral before turning the ignition key.

- 1 - Ignition off/steering locked.
Insert the key. If it is difficult to turn the key, gently move the steering wheel until the key turns freely.
- 2 - Ignition on/steering free (for towing).
- 3 - Starter engages.
The key returns to position 2 as soon as it is released. Never operate the starter longer than a few seconds. If the engine should fail to start, turn the key back to position 1 and repeat the starting procedure. More on starting on page 20.

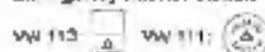
To remove the key and to lock the steering, turn the key back to position 1 and pull it out. Turn the steering wheel until it locks.

The steering column will lock when you remove the key. Therefore **DO NOT REMOVE** the key while you are driving or as the car is rolling to a stop.

10

If you leave the key to the ignition/steering lock, the buzzer will sound when the driver's door is opened. This is your reminder to remove the key.

Emergency flasher switch



If your car is disabled or parked under emergency conditions, depress the lower half of the rocker switch (VW 113; pull out the knob) to make all four turn signals flash simultaneously. The warning light in the switch or knob flashes, too.



When the headlight switch is operated, the emergency flasher switch or knob glows with reduced brightness for easy recognition in the dark. When the emergency flasher is not in operation, the brightness of the light can be regulated together with the instrument panel lights (see instrument illumination). The light has full brightness when the emergency flasher system is in operation.

Move the car well off the road when stalled or stopped for repairs.



Brake warning light



Your Volkswagen is equipped with a dual circuit brake system. Both circuits, one for the front brakes and one for the rear brakes, can function independently.

If the brake warning light lights up when you apply the brakes while driving, one of the two brake circuits may have failed. The other brake circuit will still operate, but a longer distance and greater pedal pressure are required to bring the car to a halt.

Pull off the road and stop.

Try out the effectiveness of the brakes



by carefully starting and stopping on the road shoulder.

If you judge that the brakes operate safely enough to take you to the nearest dealer, proceed cautiously and at low speed. If you do not feel it is safe to continue, have your car towed to the nearest dealer for repair.

Proper functioning of brake warning light

The brake warning light will light up when the ignition is turned on. It will go out after the engine has been started. This is your assurance that the brake warning light functions properly.

If the brake warning light does not light up when turning on the ignition, or if it does not go out after starting, there may be a defect in the electrical system. If this is the case, contact your Authorized VW Dealer.

In some VW 111 models, checking of the brake warning light is accomplished as follows: Depress the brake warning light after turning the ignition on. If the knob does not light up, contact your nearest VW Dealer.

Headlight switch - VW 113



Depress the rocker switch to the first stop to turn on the parking and side

marker, license plate, tail and instrument lights, emergency flasher light, spot light for the heater levers and the light in the TEMP-switch for the optional Auxiliary Heater.

Depress the switch to the second stop to turn on the headlights (ignition on).

Instrument illumination - VW 113

Turn the thumb wheel next to the rocker switch to adjust the brightness of the instrument lights and the heater lever spot light.

Headlight switch - VW 111



Pull the knob to the first stop to turn on the parking and side marker, license plate, tail and instrument lights, emergency flasher light, spot light for the heater levers and the light in the TEMP-switch for the optional Auxiliary Heater. Pull the knob to the second stop to turn on the headlights (ignition on).

Instrument illumination - VW 111

Adjust the brightness of the instrument lights and the heater lever spot light by turning the headlight switch knob.

Note

To preserve the battery, the headlights will go out automatically when the ignition is turned off or when the engine is started.

Speedometer dial

The speedometer indicates the speed, the odometer records the miles driven. The last digit in red indicates 1/10 of a mile.

The following warning lights are in the speedometer dial:

- a - red  alternator
- b - green  turn signals
- c - red  oil pressure
- d - blue  high beam

Fuel gauge

It is located in the speedometer dial, and only indicates the fuel level when the ignition is turned on.

When the needle is on "R", there is a reserve of about 1 gallon of fuel left in your tank ... time to refuel at the next gas station.

The red warning lights for alternator and oil pressure in the speedometer dial will light up when the ignition is turned on. They should go out after you have started the engine.

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a - Alternator warning light



Stop at once ...

If the alternator warning light comes on while you are driving.

Turn the engine off!

Check first whether the V-belt is slipping or broken. The V-belt not only drives the alternator but also the fan that cools the engine.

Tighten or replace the belt.



c - Oil pressure warning light **OIL**

Stop at once ...

If the oil pressure warning light comes on while you are driving.

Turn the engine off!

Check the oil level to make sure you have enough oil. If the oil level is normal, do not drive on but contact your nearest Authorized VW Dealer.

An occasional flickering of the oil pressure warning light when the engine is idling after a long high-speed trip is no cause for concern if the light goes out upon acceleration.

Whenever stalled or stopped for repair, move the car well off the road. Turn on the emergency flasher and mark the car with road flares or other warning devices. Before working on any part in the engine compartment, turn the engine off and wait until the engine has cooled down sufficiently.

Turn signal/headlights dimmer switch lever and windshield wiper/washer lever

There are two levers just behind the steering wheel.

The lever on the left side is for the turn signal/headlight dimmer switch.

The lever on the right side is for the windshield wiper/washer system.

The turn signals and the windshield wipers only work with the ignition on.

Turn signals

Lever up - right turn signal
Lever down - left turn signal

The green turn signal indicator light comes on in the speedometer dial when you operate the lever.

The turn signals are cancelled automatically when you have completed a turn (like driving around a corner), and the steering wheel returns to the straight-ahead position.

If a turn signal is defective, the control light flashes at about twice the normal frequency. Have your Authorized VW Dealer check and repair it for you.

Lane changer

To indicate your intention when changing lanes on expressways, slightly lift or depress the lever to an intermediate position. The lever will return to the OFF position when released.



Headlight dimmer

Dim the headlights by pulling the lever toward the steering wheel. The blue indicator light in the speedometer dial will light up when the high beams are on.

Windshield wipers **WIPE**

The windshield wiping system operates at two speeds: low and high.

Lifting lever to first stop - low speed
Lifting lever to second stop - high speed

If you just slightly lift the lever before reaching the first stop, the wipers will wipe as long as the lever is held in this position and come to a stop when released.

To give you full battery power while starting the engine, operating windshield wipers will stop automatically at this moment.

Windshield washer **WASH**

To spray washer fluid on the windshield, pull the lever toward the steering wheel. You can operate the washer from any selected wiping position.

Avoid running the wiper blades over a dry windshield ... you may scratch the glass. Spray washer fluid on it first.

13

Rear window defogger

VW Sedan 17 only



The rear window defogger, together with the Upstream Ventilation, will help to keep the inside of the rear window clear of condensation and frost in the winter.

Turn the ignition on first before you switch on the rear window defogger.

Depress the rocker switch to turn on the rear window defogger. The green control lamp in the switch will light up to remind you that the defogger is switched on.



19

Assist straps and coat hooks

There is one assist strap and one coat hook on each side on the door post.

Hang clothes in such a way that they do not impede the driver or a stow.

Interior light

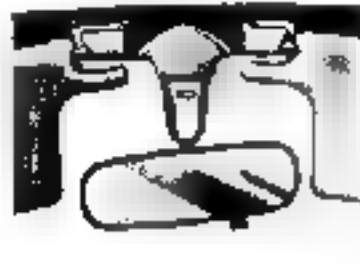
The switch positions are:

Up: ON (with doors open)
Center: OFF
Down: ON (with doors closed)

On the VW Golf 11 is the light and light switch and on the mirror bracket.

The switch positions are:

Left: ON (with doors open)
Center: OFF
Right: ON (with doors closed)



Rear view mirrors

Adjust the outside and inside mirrors before driving off. It is important for safe driving that you have good vision to the rear.

Outside mirror

The outside mirror is hinged and folds flat against the car when struck from either direction.

Inside day-night mirror (except VW 1)

You can move the day-night mirror from clear daylight visibility to non-glare visibility at night by adjusting the lever upward or downward at the bottom of the mirror.



Ashtrays

Front ashtray

Pull to open the ashtray in the instrument panel. To remove the tray depress the foot spring which you see just beneath the lid cover. Now pull out the tray.

To put it back in fold the lid down. Insert the tray in the guide rails and push it in with the heel of your hand.

Rear ashtray

To remove the ashtray in the rear passenger compartment press down on the tray and pull out. To reinstall just push the ashtray back in again.

Sun visors

To protect the driver from side glare the sun visor on the driver's side can be moved toward the door window after lifting it out of its center mounting. The sun visor on the passenger side cannot be moved toward the side.

Controls for Manual Transmission

1 Clutch pedal

Always depress the clutch pedal fully when changing gears. Do not hold the car on a steep hill with the clutch pedal partially depressed. This may cause premature wear or damage.



16

2 Brake pedal

Make it a habit to check the operation of your brakes. You will remember from page that the brake warning light will alert you if one brake circuit may have failed.

Make sure that the movement of the brake pedal is not obstructed by a floor mat or any other object.

Volkswagen automobiles have excellent brakes, but they are still subject to wear depending on how the brakes are used. If you find that the brake pedal travel has increased, have the brakes adjusted. Necessary between the specified maintenance intervals.

Keep in mind that the braking distance increases very rapidly as the speed increases. At 60 mph, for example, it is not twice as long as it is at 30 mph. The traction is also less effective when the roads are wet and slippery. Therefore, always maintain a safe distance.

Driving through deep water may reduce the traction. Moisture on the brakes may also affect braking efficiency. Caution: Apply the brakes for a test. If you notice a lag in the braking action, the brakes may be wet. They will dry after you have applied the brakes a few times, but do it very cautiously.

Brake linings may not have the highest possible braking efficiency when new. Therefore allow for longer braking distance during the initial 100 to 50 miles. This also applies when brake shoes are renewed.

3 Accelerator pedal

For good fuel economy we recommend smoothly and even acceleration.

Very fast easy driving alternating between full throttle and hard braking, raises the fuel consumption considerably. Also, wear and brake linings wear faster.

You can drive most economically between:

- 12 and 28 mph in 2nd gear
- 22 and 44 mph in 3rd gear
- 31 and 62 mph in 4th gear

4 Gearshift lever

The Manual Transmission is fully synchronized. The four forward gears and a reverse gear are arranged as illustrated. The shift pattern is also shown on the instrument panel below the speedometer. On the VW, the shift pattern is on the face of the ashtray under the dashboard.

Rocking your body on the shift lever knob while driving will cause premature wear to the transmission.

Speed ranges

You can drive your Volkswagen at all speeds from the first day. You do not have a break-in schedule. There are, however, certain recommended speed ranges for the various gears.

- 1st gear 0 - 18 mph
- 2nd 2 - 34 mph
- 3rd gear 22 - 56 mph
- 4th gear from 31 mph up

If you have a traffic situation where it is necessary for you to accelerate rapidly, you get acceleration for a brief period only up to:

- 31 mph in 2nd gear
- 62 mph in 3rd gear

Reverse

Only shift into Reverse when the car is not moving. To engage the reverse gear, press the lever down, move it to the left and pull back.

The back-up lights go on automatically when you engage the reverse gear (with the ignition on).



5. Parking brake lever

To set the parking brake, press in the release button at the end of the lever, as you pull up the lever. The parking brake is engaged as soon as you release the button on the raised lever.

To release the parking brake, pull the lever slightly up as you depress the release button. Then push the lever all the way down.

Be sure it is fully released. A partially engaged parking brake causes wear of the brake lining.

Do not remove the key from the steering lock while the car is rolling to a stop. The steering column is locked as soon as you remove the key. Take out the key only after the car is parked.

Always set the parking brake when parking your car. On steep hills also turn the wheels toward the curb.

VW Automatic Stick Shift



At first glance

you will notice the lack of a clutch pedal. Driving with the Automatic Stick Shift is simpler and shifting is easier. We suggest you carefully read the following instructions to familiarize yourself with the operation of the transmission.

The Automatic Stick Shift

transmission consists of a torque converter, a power-operated clutch for shifting and a mechanical three-speed transmission. The torque converter multiplies the torque produced by the engine and allows the vehicle to be driven with very little shifting. Usually two driving ranges will be used. It automatically changes the torque from the engine in an infinitely variable ratio according to driving conditions. Since the torque converter

is a fluid coupling, it also permits stopping the vehicle with an engaged gear while the engine is running. The clutch interrupts the flow of power from the engine to permit the gears in the transmission to be shifted. Because the power-operated clutch is actuated by the first right movement of the gearshift lever, there is no need for a clutch pedal.

Driving ranges

With the lever mounted on the frame tunnel you can select three forward driving ranges and one reverse. The neutral position 'N' is between all gears in the H-pattern.

Neutral

is the only range in which you can start the engine. In this position the power flow to the rear wheels is interrupted.

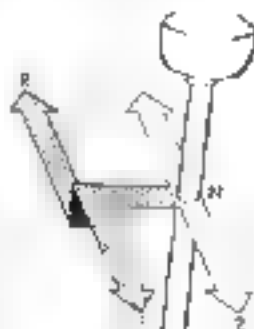
Should be used when the car is standing at rest with the parking brake engaged.

From the Neutral position you select the desired drive range.

Shift lever always stays on the right side when in Neutral as shown in the illustration.

Stopping

Release the accelerator and apply the foot brake. If you are going to start off again in another range, you may shift into the new range while the vehicle is standing still, but if you remain in a driving range apply the foot brake or brake to prevent the vehicle from creeping.



Parking

Do not remove the key from the ignition/steering lock until you have parked the car because removal of the key locks the steering.

Driving Range 1

Is for starting off and accelerating. It covers the speed range from 0-53 mph. **Always use this range first before shifting into Range 2.** Range 1 is also recommended for use in city traffic, slow moving lines of vehicles and whenever maximum acceleration is required for passing. If the lever is in Range 2 you may downshift into Range 1 at any speed under 63 mph.

Driving Range 2

Always use Range 1 first before shifting into Range 2. Range 2 should normally be used for highway driving. It is the only range that can be used for speeds above 63 mph. You may shift into Range 2 at any speed under 63 mph.

Low Range

Shift into Low when you want to go: the car moving up steep hills, especially when carrying a heavy load or when towing, and when driving down a steep hill or parking in a tight space.

Reverse

Engage the reverse gear only when the car is not moving. Depress the selector lever and to overcome a safety catch before shifting into Reverse. The back-up lights go on automatically when the reverse gear is engaged (with the ignition on).

Moving off

With the parking brake set, move the selector lever to Neutral and start the engine. Shift into the range you wish to use. Normally Range 1. After shifting be sure to remove your hand from the lever to allow the clutch to engage. To move off, release the brake and accelerate.

Do not release the brake before you are prepared to move because power is transmitted to the wheels as soon as a gear is engaged.

Shifting

is easy. Simply release the accelerator pedal and move the gearshift lever from the range you are into the range you want. Remove your hand from the gearshift lever and again stop on the accelerator.

For easier action of the driving ranges 1 and 2, which are used most, the gear

When parking you can apply the parking brake and turn the wheels toward the curb.

If you like quiet, smooth driving,

which saves fuel, we recommend that you shift to Range 2 at about 20-30 mph.

If you want maximum acceleration

you can stay in Range 1 right up to 53 mph and then shift into Range 2. Naturally this will use more fuel.

Keep in mind

1. When starting off, shift into a driving range before releasing the parking brake.
2. After shifting, remove your hand from the selector lever.
3. When idling for an extended period of time shift into Neutral and apply the parking brake. When stopped in traffic, apply either the parking or foot brake to prevent creeping.
4. When parking, apply the parking brake. On hills, also turn the wheels toward the curb.

Starting hints

Never start or let the engine run in an enclosed unventilated area. Exhaust fumes from the engine contain carbon monoxide which is colorless and odorless. Carbon monoxide, however, is a very harmful gas, and can be fatal if inhaled.

Before turning the ignition key, make sure the gearshift lever is in Neutral. The Automatic Stick Shift can be started in Neutral only.

As soon as the engine starts, release the ignition key.

If the engine does not start the first time or stalls, turn the ignition key all the way to the left and restart.

Operate the starter for a few seconds only.

Summer starting

Operate the starter while slowly depressing the accelerator pedal.

Winter starting

First depress the accelerator pedal fully and release slowly to activate the automatic choke. Then start the engine.

20

Luggage compartments

Your VW has two luggage compartments: one under the front hood and the other behind the rear seat.

Front luggage compartment

To unlock the front hood, pull the release lever inside the glove compartment. See previous page.

Now open the front hood by depressing the release button in the hood handle.

To lock the front hood, lower the hood and press the handle down firmly. Do not press on one side of the hood. Make sure the hood is securely locked.



On a Manual transmission also depress the clutch pedal when starting so that the starter only has to crank the engine.

Do not try to warm up the engine by idling it with the car stationary. drive off immediately and maintain moderate speed until the engine is warm.

Starting the engine at operating temperature

Before operating the starter, depress the accelerator pedal fully. **do not release it.** Now start.

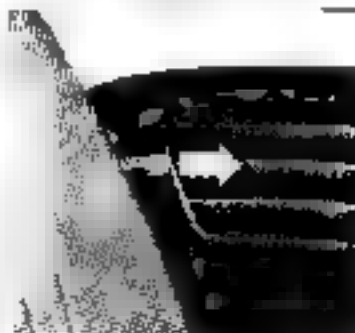


Since proper weight distribution can affect the car handling (aka advantage) of the two luggage compartments, load the front luggage compartment first, using the heaviest pieces of luggage if possible.

Rear luggage compartment

Additional luggage can be stored in the space behind the rear seat. You can expand the luggage area by folding the backrest down and fastening it in this position.

To **release** the backrest, pull the strap on the left, as seen in driving direction. When you fold the backrest back, it locks automatically in its place.



Glove compartment

To open

To close

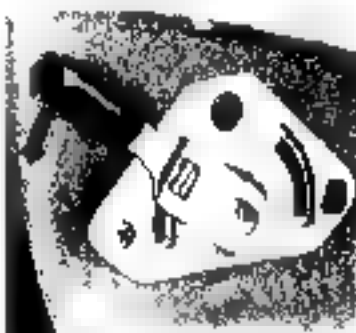
To lock or unlock
release VW

Inside the glove compartment is the **release lever for the front hood**. A locked glove compartment prevents access to the luggage compartment and the spare wheel.

Turn knob to the left

Press door lock
knob/gas

Turn key to right
or left

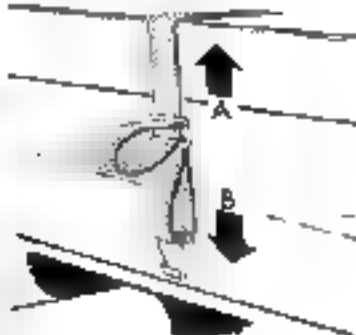


To hold the backrest in the folded-down position, hook the retaining strap (on the back of the backrest) under the rear seat.

To **adjust** the length of the strap, unhook the strap and move the slide.

A to lengthen the strap

B to shorten the strap





Articles stored in the luggage area behind the rear seat can be concealed from the outside view by a cover. This cover is attached with hinges to the backrest.

To make use of the cover, release the backrest and fold it forward. Lift the cover up. Then move backrest and cover back. The cover will rest on the edge below the rear window. Press the backrest back to lock it in place.

We recommend you do not place articles on the cover. Such items may become dangerous projectiles when dislodged during a sudden stop. They may also reduce the driver's vision to the rear.

22

Heater/Defroster

A fresh air heater/defroster is standard equipment on your Volkswagen. The control levers are located on the tunnel between the front seats. The heater lever (spot light) will illuminate the levers when the parking or headlights are turned on. The brightness of the spot light and instrument illumination can be adjusted by turning the turn wheel VW light switch knob. See page 23.

1 a - Heater temperature lever (TEMP)

The lever toward the passenger's seat controls the temperature level.

Lever up - heat on only
Lever down - heat off

By setting at any intermediate position, you can select the degree of heat as is most comfortable for you.

VW 113



After a reasonable warm-up time, which also depends on the speed of the car, warm air will enter the car's interior through the windshield vent, the side window vents (2) and outlets in the front and rear footwells.

In the VW 113, warm air will enter the car's interior through the three windshield vents (2a) below the windshield and outlets in the front and rear footwells.

Footwell outlets

There are four footwell outlets (two in the front and two in the rear). The front outlets are located just beneath the doors; the rear outlets are under the rear seat. Front and rear footwells are opened and closed with the heat distribution lever (1b).

1b - Heat distribution lever for front and rear footwells (DEF-HEAT)

With the lever on the tunnel next to the driver's seat, you can control the distribution of heat to the front and rear footwells.

VW 111



Lever down - front and rear footwells closed

Lever up - front and rear footwells fully open

You can select any intermediate position to regulate the distribution of heat to the front and rear footwells.

2 - Defroster vents for front side windows

Control VW

Volume and direction of the air coming from the outlets in the dashboard can be controlled separately by adjusting the flaps in the outlets. They can be opened or closed by pressing against one side of the flaps. When the flaps are closed, the entire volume of warm air flows through the vent at the windshield (1 - 1).

Hints for defogging and defrosting

Defogging and defrosting your windshield will be more effective if you adjust the total or lower limit of the windshield. Here is what to do:

1. Heater temperature lever (1a) all the way up (TEMP) - heat is on
2. Heat distribution lever (1b) - all the way down (DEF) - no heat to the front and rear footwells
3. For side window defogging/defrosting turn the flaps in vents (2) to the side so air toward the front side windows.

To increase the fresh air flow, turn the left fresh air knob (20) to the left (see page 25) and turn on the fresh air fan (19).

Now all air is directed toward the windshield and front side windows.

In the VW 111, follow the above steps and 2. In addition set the lever at the vents (2a) below the windshield straight up. Turn the fresh air knob (see page 25) to the left to increase the air flow. Now all air is directed toward the windshield.

Ventilation

Flow-through ventilation provides a non-stop, draft-free exchange of air while driving. Air enters the car through the grilles on the front hood and inside vents. A water separator prevents rain from entering.

The air in the passenger compartment is drawn out through inside openings near the rear window and escapes to the outside through louvers.

A two-speed electric fan (except VW 117) behind the instrument panel increases the flow of air when driving at low speeds and also supplies fresh air when the car is standing still (ignition on).

Right knob - turn to left:

Air flow toward passenger compartment increases (vents 1, 2, 3). The vanes in the vents can be adjusted upward, downward or sideways.

To **decrease** the air flow, turn the knob to the right.

To **stop** the air flow completely, turn the knob to the right beyond the pressure point.

19 - Fresh air fan

You can increase the regular air flow by turning on the two-speed fan.

The switch positions are:

I - off

II - low speed

III - high speed

The fan operation is **most effective** if you have opened the fresh air vents by turning the fresh air knobs all the way to the left.

To give you full battery power while starting the engine, the operating fresh air fan will stop automatically at this moment.

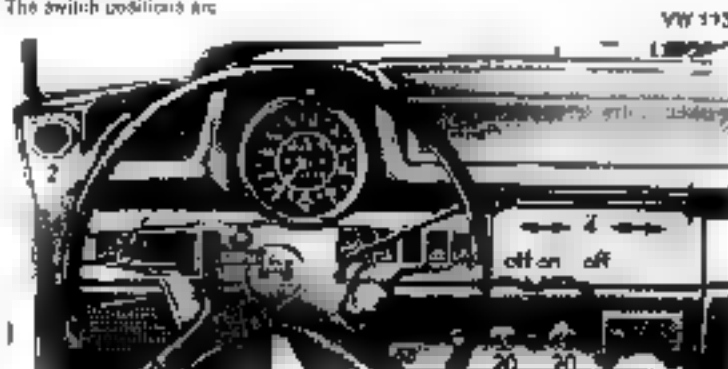
VW 113

23 - Fresh air knobs

You can regulate the volume and distribution of fresh air with the two knobs.

Left knob - turn to left:

Air flow to windshield vents (1) and side window vents (2) increases.



24

VW 111

11 - Fresh air control knobs

You can regulate the volume of fresh air for each side separately by turning the knobs.

Turn left - air flow increases

Turn right - air flow decreases

To stop the air flow completely, turn the knobs to the right beyond the pressure point.

2a and 2b - Fresh air vents

Fresh air comes out through a pair of vents on each side.

Each upper vent has a lever. When the lever is in the straight-up position the air is directed toward the windshield. In the down position (move lever to the right), the air is directed into the passenger compartment. Air will flow in both directions when you select an intermediate position.

Sliding roof

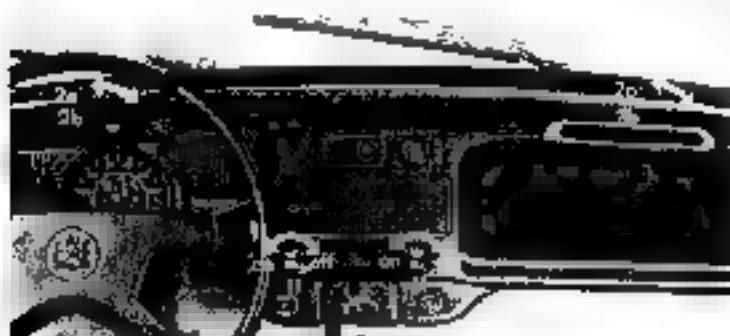
(optional on the VW 113)

We call the VW with a sliding roof the VW Sunroof.

To open the sliding roof, pull the handle out and turn it counterclockwise. To close the sliding roof, turn the handle clockwise. The sliding roof is locked in any open position.

For safety reasons, fold the handle back into its recess as shown in the illustration.

VW 117



25

Convertible top

The convertible top should never be opened or closed when the car is in motion.

How to open the convertible top

The top should be dry before you open it.

First release the locking levers on the sides above the windshield and turn the top back.

- 2 Press down the top to engage the locking catches on both sides.



1

Make sure the padding does not get caught under the folded-down stop 2 or in the linkage.

- 2 Now take the covering boot, a special cover that comes with every new VW Convertible, and slide it over the folded-down top. Tuck in the sides.

Fasten all straps and rubber straps of the boot securely to the body.

How to close the convertible top

- 1 The top should be dry before closing.

First take off the boot and turn down the rear windows. Press the top down lightly to disengage the locking

catches on both sides. Fold the top up and toward the front.

- 2 From inside the car, grasp both levers and pull the top forward until the pins enter the guide holes on the windshield frame.

- 3 Engage the hooks at the end of the levers into the grasping brackets above the windshield frame. Now lock the top tightly by pushing the levers upward.

- 4 As a last step, open and close the rear windows to properly position the weatherstrips.



VW Auxiliary Heater (optional equipment)

Do not start or let the engine or heater run in an enclosed, unventilated area to warm up the car. Exhaust fumes from the engine or gasoline heater contain carbon monoxide, which is colorless and odorless. Carbon monoxide, however, is a very harmful gas, and may be fatal if inhaled.

To switch the heater on, depress the lower half of the rocker switch VW 1, pull out the knob. This lights up a green indicator light in the rocker section of the knob.

The indicator light will also glow when the heating system is operated while the Heater is not in operation. This feature has been provided for easy recognition of the switch or knob in the dark.

To avoid an unnecessary drain on the battery switch the heater off after about 25-30 minutes if the engine has not been started in the meantime.

A heat limit switch will turn the heater off periodically. The heater will come on again automatically within 3 minutes.

To switch the heater off, press on the upper half of the rocker switch VW, push the knob in. The indicator light then goes out but the blower motor continues to run until the heater has cooled down.

The heater must be switched off when filling the fuel tank.

When it is very cold, the full battery capacity is required to start the engine. To

avoid starting difficulties, it is advisable not to exhaust the vehicle battery under these conditions. That is, do not switch the heater on until the engine is running.

The heater normally requires no special maintenance. It is advisable, however, to have the heater plug checked once a year before the cold weather sets in and a new plug installed if necessary. The fuel system should also be checked for cleanliness and the electrical connections for tightness.

During the winter and when driving over very poor roads, mud or snow may tend to accumulate in the exhaust and combustion air intake pipes. Have these pipes checked for blockage from time to time so that the heater continues to work properly.

When the heater is not in use for long periods (for instance during the summer), the fuel in the heater can evaporate. It is therefore advisable to operate the heater briefly once a month when it is not in regular use.

Heat output: 8,000 Btu/h
Fuel: Gasoline from fuel tank
Fuel consumption:
approx. 0.3 gal/h (40 g imp. petrol)
Oil: oil consumption 40 wicks



VW Air Conditioner (optional equipment)

The illustration shows a VW Jetta equipped with an air conditioner. The controls and air discharge louvers for the air conditioner in the VW Jetta are arranged in a similar way.

Operating controls



1 - Air volume switch ("FAN")

This switch serves two functions: it turns the air conditioning system on and off and controls the fan speed. The fan positions are:

1st position	HIGH
2nd position	MEDIUM
3rd position	LOW

2 - Air temperature control ("TEMP")

By progressively turning the control to the right, the desired cooling range can be selected. It is in the center position when turned as far as possible to the right.

3 and 4 - Air discharge louvers

Louver 3 can be adjusted up or down with the small knob on the lower edge of the louver housing. The same in the lower housing can be moved sideways to direct the conditioned air flow to the left or right. Louvers 4 and all louvers on the VW Jetta can be adjusted up, down or sideways by moving the control wires.

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Starting the Air Conditioner

With the windows and fresh air regulation closed, turn the air temperature control to the desired position and wear the air vent mask as desired. On extremely hot days turn the air volume to full, quickly and open a window. Within a few minutes the hot air will be cooled out of the car and the window can be rolled up as cooling starts.

Adjust the air discharge louvers to the desired position.

Stopping the Air Conditioner

Turning the air volume switch to the "OFF" position stops the entire air conditioning system.

When restarting a stalled engine, it is not necessary to turn off the air conditioner. The demand to the air conditioner is interrupted during the starting process.

Operational hints

• The car interior becomes too cold after adjusting the air volume; turn the air temperature control to the left until the desired control level is reached.

• The windows fog over on the exterior on warm, humid days; turn the air temperature control to the left until the windows clear up, or turn the windshield wipers on.

• The windows fog first on the interior; they can be quickly cleared by turning on the air conditioner.

During highway driving, set the air temperature control at approximately the middle position.

Maintenance hints

During the winter season, it is advised to inspect your Air Conditioner knob at least once every week. This will help to keep the seals and fittings properly lubricated.

After the winter months and before extended summer usage, the air conditioner should be checked and if necessary serviced by an Authorized VW Dealer.

The condenser should be checked periodically to clean it. If clogged in any area with dirt or insects, the condenser should be washed down with water.

If the condenser fins are bent, the car should be taken to an Authorized VW Dealer for straightening of the condenser fins.

An air-conditioned Volkswagen should only be parked on a lift that provides adequate clearance to prevent damage to the refrigerant hoses.

Circuit breaker

An automatic resetting circuit breaker for the current supply of the air conditioning system is located under the rear seat. It is connected directly to the battery.

Note:

When a VW Air Conditioner is installed, the vehicle capacity weight may be reduced accordingly (see sticker on the inside of the glove compartment door).

Towing and trailer hauling

A - Towing

Your vehicle is designed to tow only light trailers, such as a boat trailer, and even then only for emergency towing over short distances only.

Rules

A heavy tow is a strain on the engine and transmission.

Precautions

Your vehicle has a tow capacity of 1,000 lbs. Do not exceed this weight.

When towing, use proper tie-down technique.

When towing your vehicle, use the parking brake in Neutral. Turn the ignition on to be able to operate parking lights, turn signals and stop lights. Be sure to release the parking brake.

Always observe state laws and manufacturer's limitations concerning towing.

Proper tie-down technique

When towing your vehicle, use proper tie-down technique. Use at least two tie-downs per trailer.

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B - Trailer hauling

When towing your vehicle, use proper tie-down technique. Use at least two tie-downs per trailer.

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When towing your vehicle, use proper tie-down technique. Use at least two tie-downs per trailer.

VW Automatic Shift Valve

When towing your vehicle, use proper tie-down technique. Use at least two tie-downs per trailer.

JO

Winter operation

Your vehicle has an air-cooled engine. Be sure to use the proper oil grade for the season. The engine oil should be changed at the first sign of winter. The oil should be changed at the first sign of winter.

Battery

Check the water level in the battery. The water level should be at the top of the plates. If the water level is low, add distilled water. Do not add tap water.

Check the battery terminals. The terminals should be clean and tight. If the terminals are loose, tighten them.

Check the battery for leaks. If there are leaks, do not use the battery. The battery should be replaced.

Check the battery for corrosion. If there is corrosion, clean it off. The battery should be replaced.

Door locks

Check the door locks. The door locks should be working properly. If the door locks are not working, they should be replaced.

Check the door locks. The door locks should be working properly. If the door locks are not working, they should be replaced.

Emergency equipment

Check the emergency equipment. The emergency equipment should be working properly. If the emergency equipment is not working, it should be replaced.

Brake oil

Check the brake oil. The brake oil should be working properly. If the brake oil is not working, it should be replaced.

Check the battery and the engine

Check the battery and the engine. The battery and the engine should be working properly. If the battery and the engine are not working, they should be replaced.

ATF warning light

Stop at once

If the ATF warning light comes on, stop at once. The ATF warning light should be replaced.

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Transmission oil

Check the transmission oil. The transmission oil should be working properly. If the transmission oil is not working, it should be replaced.

Check the transmission oil. The transmission oil should be working properly. If the transmission oil is not working, it should be replaced.

Wash the car

Wash the car. The car should be washed properly. If the car is not washed properly, it should be replaced.

Spark plugs

Check the spark plugs. The spark plugs should be working properly. If the spark plugs are not working, they should be replaced.

Tires

You Volkswagen is equipped with tubeless bias ply tires. Volkswagen tires comply with all applicable U.S. Federal Motor Vehicle Safety Standards.

Tire pressures

For good car handling and long tire service life, it is important to maintain recommended tire pressures. Tires which are inflated above or below specifications can cause increased tire wear, increased gas consumption and affect the road holding of the car.

VW-recommended cold tire inflation pressures are listed on a sticker on the inside of the glove compartment door.

In the interest of safety, check the tire pressure of all tires, including the spare tire, at least once a week, and always before going on a long trip.

For road use do not exceed the maximum tire inflation pressure listed on the tire sidewall.

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If you notice that tires are wearing unevenly, consult your Authorized VW Dealer. Uneven wear may not always be due to improper wheel alignment. It can be the result of individual driving habits such as cornering at high speeds. If the tire pressure is not checked and adjusted regularly (approximately) no wear can also occur.

Do not drive with worn tires or tires showing cuts or bruises as they may lead to sudden deflation.

Tire replacement

In the interest of maximum safety and best all-around car handling, always buy replacement tires that show the same specifications with regard to size, design, load carrying capacity, tread pattern, etc. This also applies to VW-recommended alternate replacement tires.

Tire specifications are imprinted on the sidewall of the tire. If in doubt, check with your Authorized VW Dealer.

Replace all 4 tires at the same time, if it is not possible, replace tires in pairs either front or rear.

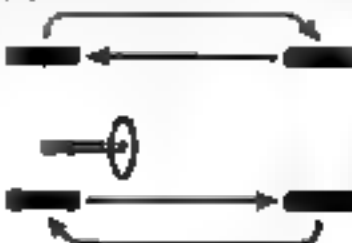
New tires do not possess maximum traction. They tend to be slippery. Break new tires in by driving at moderate speed for the first 50-100 miles.

Spare tire pressure

Since the spare tire supplies the pressure to operate the windshield washer, the pressure of the spare tire should be between 22-47 psi (1.5-3.0 kg/cm²). This pressure level is only to be maintained for the operation of the windshield washer system. For road use, the pressure of the spare tire should be adjusted as specified on the sticker on the inside of the glove compartment door. See also page 34.

Tire rotation

If uneven tire wear should occur, we recommend that the tires be rotated as shown in the sketch below. Afterwards the tire pressures must be corrected. The wheel bolts should be torqued diagonally to 87-94 ft lbs. See also page 38.



Winter tires

Winter tires give good traction in snow or slush.

For a better grip on hard snow or ice, you can use winter tires with studs, but check with your State Motor Vehicle Bureau for possible restrictions. Winter tires with studs should be run at moderate speed when time to grip the slushy time is short.

Winter tires should preferably be mounted on all four wheels. They should also conform to the same load requirements as original equipment tires.

Inflation pressures for winter tires are listed on the sticker on the inside of the glove compartment door. Do not exceed the maximum tire inflation pressure listed on the tire sidewall.

Winter tires do not fulfil their purpose if the tread depth is less than 3/32" (4 mm).

For safety reasons, it is not advisable to drive with winter tires at high speeds. Winter tires do not have the same degree of traction on dry wet or snow-free roads as regular tires.

Wheel balancing

A wheel should always be balanced after a tire repair. Also, since regular use can cause tire imbalance, the wheels should be balanced from time to time. Imbalanced wheels may affect car handling and tire life.

Tire wear

The original equipment tires on your VW have built-in tread wear indicators. They are molded into the bottom of the tread grooves and will appear as approximately 1/8 inch bands when the tire tread depth becomes 1/8 of an inch. When the indicators appear, it is time to replace the tires. We recommend, however, that you do not let the tires wear down to this extent. Worn tires cannot grip the road surface properly, and also tend to affect the overall ride.



Indicator visible - tread worn

Tire care

- Frequently check tires for damage.
- Remove imbedded material.
- Keep oil and gasoline away from tires.
- Replace worn tires in time.
- Replace missing valve dust caps as soon as possible.

Spare wheel

The spare wheel is under the front hood. To unlock the hood, pull the lever inside the glove compartment.

In the VW 113, the spare wheel is stored horizontally under the luggage compartment cover.



The spare wheel is connected to the windshield washer container and pump. The air pressure to operate the washer. The air supply to the windshield washer will be interrupted automatically by a cut-off valve if the air pressure drops to 20 psi (1.8 kg/cm²). This prevents the spare tire from being deflated below the required pressure.

In the VW 111, the spare wheel is stored in an upright position in the spare wheel well.



34 Changing a wheel

If you have a flat tire, move off the road. Turn on the emergency flasher. In addition, mark the position of your car with cones or other warning devices to alert other motorists.

Before you change a wheel, be sure the ground is level and firm, especially near the rear wheels where the jack ports are.

Set the parking brake and block the wheels opposite the defective wheel on the other side of the car.

For a more efficient and safe changing of a flat tire, observe the following 10 steps.

Further on, we expand on these steps in greater detail.

- Step 1 Take out tools (jack and spare wheel).
- Step 2 Remove hub cap.
- Step 3 Loosen wheel bolts. Do not take them out.
- Step 4 Securely raise the jack at jack port. There is one for each side. It is under the running board toward the rear and is used for front or rear wheel changing.

Never jack the car up by the bumper or the running board.

Check the air pressure from time to time and maintain it up to a max. value of 42 psi (3.0 kg/cm²). This pressure level is only required for the operation of the windshield washer system. For road use, adjust the spare tire pressure as specified on the sticker on the inside of the glove compartment door.

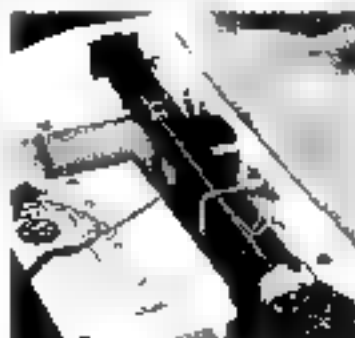
To check or correct the pressure, first unscrew the hose from the valve near the rear cap of the windshield washer container (see also picture on page 33). The spare wheel is connected to this valve and can therefore be pressurized via this valve. Reconnect the hose to the valve after checking or inflating the spare tire.

On the VW 111, disconnect the windshield washer hose from the valve of the spare tire (see also left picture). Reconnect the hose after inflating or checking.

Jack

The jack is only to be used for changing a wheel. Do not use it as a support to work underneath the car.

The jack is located under the rear seat next to the battery. It is held in storage position by a clamp. To take out the jack, take out the rear seat (see page 45) and lift the clamp. Before putting the jack back in again, wind it down slightly. Tighten the clamp.



- Step 6 Jack up car.
- Step 5 Change wheel and handtighten wheel bolts.
- Step 7 Lower car.

- Step 8 Further tighten the wheel bolts.
- Step 9 Replace hub cap.
- Step 10 Torque and air pressure adjustment.

Step 1

Take out your tool kit!

Take out the jack from under the rear seat next to the battery. Take the rear seat out (see page 45) and lift the clamp that is holding the jack in storage position.

Before you take out the spare wheel from under the front hood, disconnect the hose leading to the windshield washer control (see large arrows, see right picture on this page and left picture on page 33).



In the VW 11, lift the spare wheel up and place it on the edge of bumper. This way you have better access to the two wedges (small arrows) that hold the wheel container in place. Remove the wedges and separate the container from the wheel.



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Step 2

With the wheels still only resting on the ground, remove the hub cap of the defective wheel.

Insert the puller in the holes at the rim of the hub cap. Put the breaker bar through the puller. Brace one end on the bar on one wheel rim and tug tightly on the other end.

When you place the hub cap face down, you can use it as a tray for your wheel bolts.



Step 3

Loosen all wheel bolts counterclockwise about one turn with the socket wrench. Insert the breaker bar to make full use of its leverage. Do not yet remove the bolts.



Step 4

Securely insert the jack into the jack port. There is one on each side under the running board toward the rear and is used for front and rear wheel jacking. Never jack the car up by the bumper or running board.

Provide for a firm base for the jack on the ground. If necessary use a board.

Passengers should not remain in the car when the car is jacked up.

Step 5

Do not release the car until you are sure the jack is securely engaged.

To raise the car, turn the handle clockwise.

To get the jack as vertical as possible, push the upper part of the jack toward the body while you are jacking up the car.

Only raise the car as much as is needed to change a wheel.



Step 6

Fully unscrew the wheel bolts and place them into the hub cap. Place the spare wheel against the brake drum so that the bolt holes in the wheel are in line with the threaded holes in the brake drum. Insert the wheel bolts and handtighten them crosswise before jacking the car down.

Step 7

To lower the car, turn the handle counterclockwise.

Step 8

Then go clockwise from one bolt to another, tightening them firmly with the socket wrench and breaker bar.

Step 9

To install the hub cap, place it around the lower part of the wheel center and with a 5 in push on the upper part, the hub cap will snap into place. Make sure it is properly sealed.

Step 10

Correct tightness of the wheel bolts is important.

Correctly tightened bolts should have a torque of 87-89 ⁴ lbs. This torque can be obtained with socket wrench and breaker bar by any person of average strength. If in doubt about the correct tightness of the wheel bolts, have checked with a torque wrench by your dealer or a service station.

Also, check the pressure of the tire you have just put on.



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Container for windshield washer fluid (1)

The windshield washer container has a capacity of 3.6 US pints (3.0 imp. pints). To add washer fluid, just unscrew the filler cap. The container can be filled to the cap.

As clear water is usually not adequate for cleaning the windshield, add a cleaning solution to the water such as Volkswagen's Windshield Washer Anti-Freeze & Solvent. It is a concentrate, so follow the directions on the can for the correct amount to be used.

You can use Volkswagen's Windshield Washer Anti-Freeze & Solvent all year. It helps to keep your windshield clean, and prevents freezing of the washer fluid in the winter.

Since the spare tire supplies no pressure to operate the washer, it should always be kept up to a pressure of 42 psi (3.0 kg/cm²). To pressurize the spare tire, see page 34.

Brake fluid reservoir (2)

The brake fluid should always be above the seam edge near the top of the reservoir. If it drops below this point, the cause should be corrected by your Authorized Volkswagen Dealer.

Every 2 years, the brake fluid has to be replaced.

See "Scheduled Maintenance" on page D8 and "Additional Service Record" on page G-10.

Only new, unused brake fluid that meets the SAE recommendation J-103 and conforms to Motor Vehicle Safety Standard 16 can be used.



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Battery

The battery is under the rear seat on the right as seen in driving direction. Just take the rear seat out (see page 45).



The electrical system depends mainly on the battery. Therefore the battery should be checked regularly and kept in good working condition.

Never drive the car with a disconnected battery as this may damage the electrical system.

Do not expose the battery to an open flame or electric spark. Hydrogen gas generated by the battery is explosive. Do not let battery acid come in contact with skin, eyes, fabric, or painted surfaces.

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Each filler plug has to be unscrewed to check the acid level in each cell. It is below the indicator top 4 up with distilled water. Only fill up to indicator.

How often water must be added to the battery depends mainly on operating conditions and on the time of year. As a general rule the battery electrolyte level must be checked more often in the summer than in the winter and more often when driving long distances.

The terminals and connections should be kept clean and greased with silicone spray or petroleum jelly. Make sure the ground connection to the body is tight and free of corrosion.

When working on the battery, be sure not to short circuit the terminals. This would cause the battery to heat up very quickly, which could lead to damage.

Before having a jump exchange performed on a battery installed in a car, disconnect both terminals to avoid serious damage to the electronic components of the electrical equipment.

If you have not used your car for an extended period of time, have the battery recharged.

Fuses

The 2-part fuse box is located under the instrument panel.

When a fuse is blown it is not sufficient to merely replace it. The cause of the short circuit or overload must be found. On no account should fuses be paired up with an fitter or wire as this may cause serious damage elsewhere in the electrical circuit. It is advisable to always carry a few spare 5 amp and 8 amp fuses in your car.

To replace a fuse, simply depress a contact on either side of the fuse.

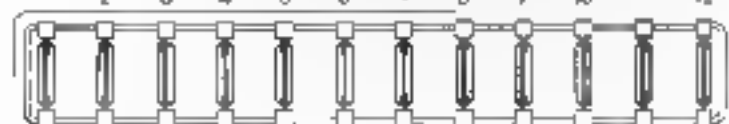
There are ten 5 amp fuses (white) and ten 8 amp fuses (red). No. 8 and No. 10 are the two 15 amp fuses.

Model 11 12

Parking and side marker lights
License plate light, Tail light

right
Tail light, left

2 3 4 5 6 7 8 9 10 12



5amp

15amp

Fuel supply

In the interests of cleaner air the VW engine is designed to run also on low-lead or lead-free gasoline.

The engine requires Regular gasoline. The minimum octane rating is shown on the label on the inside of the fuel tank. Stop if regular fuels with adequate anti-knock qualities are not available, premium fuels should be used or mixed with regular fuel. This might be necessary when traveling outside the United States or Canada.

The auxiliary heater (optional equipment) must be turned off when filling the fuel tank.

Never start or let the engine run in an enclosed unventilated space. Exhaust fumes from the engine contain carbon monoxide which is colorless and odorless. Carbon monoxide, however, is a very harmful gas, and can be fatal if inhaled.

Model 11 12

Low beam, left	2	3
Low beam, right	4	4
High beam, left	6	6
High beam indicator right	6	6
High beam, right	6	6
Accelerator	7	7
Emergency flasher system	6	6
Buzzer	9	9
Interior light	8	8

Windshield wipers, Rear window defogger/switch current 10 10

Fresh air fan 10

Horn, Stop lights, Control valve and ATF warning light Automatic Stick Shift

Fuel gauge, Turn signals, Brake warning light, Warning lights, oil pressure, turn signals and extension

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Additional fuses

Electrical equipment	Rate	Location of fuse holder
Back-up lights	8 amp	In the engine compartment above the ignition coil "A"
Rear window defogger (when equipped)	5 amp	Underneath the rear seat on the left "B" (as seen in driving direction)
Auxiliary heater (optional equipment)	16 amp	In the front luggage compartment near the heater "L"

To replace a fuse in an interior fuse holder, pull the holder out of the clip, where necessary. To open the holder, grasp both ends of the holder, press lightly together and twist counterclockwise until fuse. To close the holder, put both ends together again, press lightly, and twist clockwise.



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Cleaning your VW

The paint on your VW is very durable, and so is the upholstery. But a car can get a lot of abuse from industrial fumes and corrosive road salt to hail-beaten fenders and muddy dog feet.

A well-cared-for VW can look like new 10 years later. It all depends on the owner and the amount of care he is willing to give to his car.

Here are a few hints on how to keep your VW looking young and beautiful. We have also compiled a list of cleaning products. They are available at any VW Dealer.

Whenever using VW-recommended products or other cleaning agents, follow the directions on the containers. Be aware of warning or caution labels.

Washing your VW

The longer the dirt is left on the paint, the greater the risk of damaging the glossy finish, either by scratching if the dirt is rubbed into the paint, or simply by the chemical effect dirt particles have on the paint surface.

Therefore dirt should be washed off as soon as possible. NEVER WASH IN DIRECT SUNLIGHT.

Use plenty of water & hot-water soap, such as VW's Car Wash and Wax, and a

Application	Volkswagen Product
Car wash and liquid wax	Car Wash and Wax ZVW 243-20
Paint preservation	Paint Preservative and Wax 000 0660
Paint waxing	Classic Car Wax ZVW 246-90
Paint polishing and paint waxing	Combination Car Cleaner and Wax ZVW 247-100
Paint polishing, remove paint oxidation	Paint Polish 000 066001
Preservation of chrome parts	Chrome Pres. Valve 000 066007
Paint touch-up	Touch Up Paint (all colors)
Convertible top cleaning, spray-on carning	Alu Purpose Cleaner ZVW 243-01
Windshield cleaning and washer and-freeze	Windshield Washer Anti-Freeze & Solvent ZVW 24-10

soft sponge or rope brush. Begin by spraying water over the dry car to remove all loose dirt before applying the lukewarm soap-water solution.

Use plenty of water to rinse the car off. Wipe the car dry with a chamois to avoid water spots.

Waxing

Waxing is not really needed when you have washed your car with VW's Car Wash and Wax. If you do not use a car wash liquid with wax, apply Palm Preservative and Wax to preserve the natural shine of the car.

To obtain a long lasting wax finish, apply hard wax such as VW's Classic Car Wax, eight to ten weeks after buying the car. Wax again when water remains on the surface in large patches instead of forming beads and rolling off.

Polishing

Use a polish such as VW's Paint Polish later in the car's life when the paint appears dull and loses its shine. Do not polish the new car.

Always apply wax after polishing.

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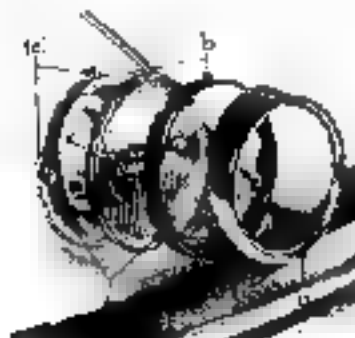
Replacing bulbs

Headlights

Your Volkswagen is equipped with double filament seven-inch sealed beam units. Should it become necessary to replace a unit, loosen screws in the corner of the trim ring below the headlight and take off the trim ring.

Firmly grasp the loose screw and trim-ring assembly, and pull the ring off.

Remove three short screws to in section before returning trim ring and take ring off.



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Do not alter the position of the long headlight adjustment screws (A-C).

Take sealed beam unit out of support ring and put back on sector off.

When replacing new sealed beam units, be sure the three glass lugs engage properly in the support ring.

Before installing trim ring be sure the rubber gasket is in place. Properly insert the screw for the trim ring and turn for 2 or 3 turns.

Position edge of trim ring over upper lug. Press ring over lug until gasket screw.

If no other headlight part as described here was removed or its position changed, it should not be necessary to aim the headlights. If in doubt have the adjustment checked at your dealer.

Front turn signal/parking light bulb or side marker light bulb

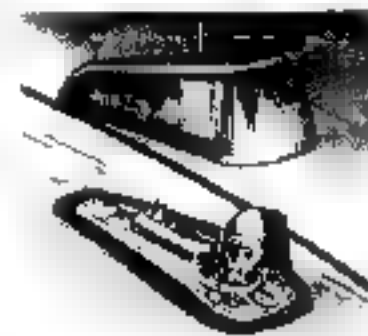
Remove two Phillips screws. Take off housing and lens.

Gently press bulb into holder, turn and pull out.

Install new bulb.

Be sure the gasket is properly positioned when reinstalling the housing and lens.

Tighten screws evenly. Do not over-tighten as this may crack the lens.



Rear turn signal, stop/tail light or back-up light bulb

Unscrew four Phillips screws and remove lens.

Bulb positions:

- a turn signal light
- b stop light
- c tail light
- d back-up light

Gently press bulb into holder, turn and take out. Install new bulb.

Be sure the gasket is properly positioned when reinstalling the lens. Tighten screws evenly. Do not over-tighten as this may crack the lens.



License plate light bulb

Open rear hood.

Remove screws on each side of lens and take off lens with bulb holder.

Pull bulb holder out of lens.

Gently press bulb into holder, turn and take out.

Install new bulb.

When installing, ensure that the cable grommet fits properly.



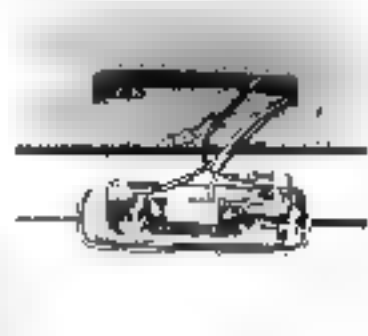
Interior light bulb

Insert screwdriver in housing, cut out on the switch side and carefully pry out.

Take bulb out.

Install new bulb.

Insert housing in reverse order.



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General services

Before working on any part in the engine compartment, turn off the engine and let it cool down sufficiently. If work has to be done with the engine running, exercise extreme caution to prevent injuries, jewelry or long hair from getting caught in the V-belt.

Incomplete or improper servicing may cause problems in the operation of the car. If in doubt about any servicing have it done by your Authorized VW Dealer or any other properly equipped and qualified workshop.

Adjusting or replacing V-belt

Turn the engine off!

To adjust the belt, remove the rear half of the pulley on the schematic. When loosening and tightening the nut, place a screwdriver through the cut-out in the front half of pulley and support the screwdriver as shown in the picture.

The belt tension is adjusted by varying the number of washers between the pulley halves. Taking washers out increases the tension, putting them in decreases it. Extra washers are stored on the outside of the pulley half.

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Cleaning or replacing spark plugs

The correct spark plug gap is 0.028 inch. Since the spark plug gap tends to increase in time during normal operation, it is advisable to replace spark plugs every 2,000 miles.

Removing spark plugs

Grasp the spark plug connector and pull it off. Do not pull on the ign. line wires as they may separate from the connectors.



The V-belt must not be too tight or too loose when you are making the following belt tension check. Press one side of the belt at the center between the two pulleys. The tension is correct if the belt can be depressed between 0.43 inch and 0.55 inch at a pressure of 8.5 lbs. a firm press with your thumb.

A new belt may stretch slightly at first. To compensate for this, the belt should be tightened slightly more when first installed. The deflection should be between 0.35 inch and 0.43 inch at the same pressure. The correct deflection is:

- a. to loosen b. to tighten



ension will then be reached after about 30 minutes of operation. If in doubt have the belt tension checked and adjusted by your VW Dealer.

The heavy-duty V-belt has a very low stretch factor. When properly installed the belt tension will remain fairly constant. Volkswagen-recommended V-belts have a relatively long service life, however, it is good planning to always carry a spare belt in your car.

For the correct designation on the belt, see page 53.



Unscrew the spark plugs with a suitable spark plug wrench.

Cleaning spark plugs

Dirty spark plugs should be cleaned with a good blade, but if not available, the carbon can be removed with a wooden or plastic pick. Do not use a wire brush. The plugs should also be clean and dry on the outside to avoid shorting and arcing. The gap can be set by bending the outside electrode. The gap should be 0.028 inch.

Installing spark plugs

Insert them by hand and screw them into the cylinder head as far as they will go. Only then use the spark plug wrench to tighten them firmly. Do not overtighten.

Checking the engine oil

Your VW will usually not need additional oil between the scheduled changes.

Even so, you should check the oil level from time to time. To get a true reading be certain the car is on level ground.

Wait at least 5 minutes after the engine has been stopped, give the oil time to collect in the crankcase.

To check the oil level, take the dipstick out and wipe it clean first. Now insert and pull it out again. You have enough oil in the engine if the oil level is between the upper and lower marks on the dipstick.

Only add the amount of oil that is needed.

Always select a well-known brand and the recommended grade. Details about the correct oil capacities are on page 54.



Changing the engine oil

Change the oil in your engine at least every 3,000 miles. This is very important as the lubricating properties of oil diminish gradually during normal operation of the car.

Drain the oil when the engine is still warm. Loosen all 3 cap nuts. Then, after removing the oil filter, pry the oil strainer cover loose. Allow the oil to drain.

After the oil is drained, remove the oil filter to clean it. The cleaning of the strainer should be done with every oil change. Use new gaskets and cap nuts. Washers when re-assembling the strainer to be sure no oil leak will develop later.

Fill the engine with 5.0 to 5.8 quarts (4.4 to 4.9 pints) of oil labeled For Service SD* or SE* (a combination). For the right oil viscosity, see page 34.

Because of detergent additives in the oil, the fresh oil will look dark after the engine has been running for a short time. This is to be expected, and there is no reason to change the oil at intervals shorter than 3,000 miles.

We recommend more frequent oil changes every 1,000 miles if you drive your car only short distances during the winter months. If you drive for only a few hundred miles a month, under these con-



ditions, we advise you change the oil every 500 to 1,000 miles. In areas with extreme climate where average temperatures are below -20° F the oil should be changed every 750 miles.

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Manual Transmission oil

Both annular and final drive are contained in one housing. The lubricant used is hypoid oil, that is changed by your dealer only one time at 600 miles oil per oil of the lubrication service. See page 32.

Should the need arise to add oil, it should only be done with the necessary workshop equipment. Also hypoid oil is generally not marketed in small quantities.

Automatic Transmission Fluid

On vehicles with Automatic Stick Shift, the ATF in the torque converter does not have to be changed, but the level should be checked every 3,000 miles with the engine turned off.

Wipe the dipstick clean with a rag and, starting it to take a level reading. The fluid level should be between the two marks on the dipstick, and should never fall below the lower mark. Only add the required amount of ATF. Check for leaks. For ATF specifications, see page 55.

An ATF tank filler with a dipstick attached to its cover is provided for this purpose on the right side in the engine compartment.



Air Cleaner

All the dust present in the air drawn in by the engine is retained by the filter element in the air cleaner.

A dirty filter element not only reduces the engine output but can also cause premature engine wear. If local conditions are such that the vehicle is often driven on very dusty roads, the cleaner must be serviced frequently, even daily, necessary.

Under normal conditions it is not necessary to service the filter element more frequently than is mentioned in the Diagnosis and Maintenance Service.

To clean or to replace the filter element, the air cleaner must be removed. Do the following:

For easier reinstallation note the hose attachments. Interchanging of hoses affects the operation of the engine.

Pull off hoses A through C (hose C directly behind B).

Loosen clamp D and pull hose off.

Loosen screw E of air cleaner clamp and remove air cleaner from carburetor.

Release the four clips F and take out part of air cleaner off.

Take the filter element out and clean or replace it. Remove the dirt by shaking the filter element out, with the dirt-trapping side down.

Note

Under no circumstances may the paper element be cleaned or soaked with gasoline, cleaning solvents or oil.

When installing the air cleaner, make sure the element is properly seated and the gap between the air cleaner and filter housing is even.

Tighten the air cleaner clamp screw E carefully, but do not over-tighten it.

Make sure all hoses are properly connected.

Note

On the Automatic Stick Shift, be sure to position the green hose for the vacuum spark advance and the black hose for the intake air pre-heating, before closing the left rear clip F.



02 Lubrication

Front axle

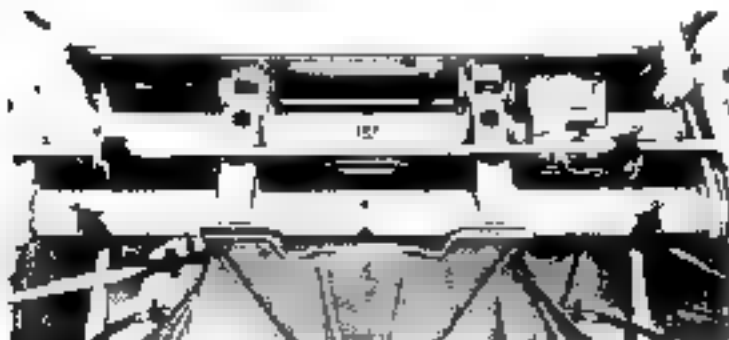
*Applies to the Volkswagen Sedan only. The front axle of the Volkswagen Sedan 1.6 and the Camper/limo does not have to be lubricated.

Lubricate the front axle once a year or every 18,000 miles (see VW Diagnosis and Maintenance Schedule).

At the front end of the car to ease the weight off the front wheels. This is necessary to free the bearings to accept the lubricant. There are 4 grease fittings for the front axle. For their location see arrows in the illustration.

Before forcing grease into the fittings, be sure to wipe them clean with a piece of cloth. Force lithium-based multi-purpose grease into the fittings until fresh grease starts to emerge at the top of the fitting openings.

Wipe off any grease or oil that may have come in contact with tires or brake hoses, because grease and oil have an adverse effect on rubber.



Door hinges and locks

The door hinges have to be lubricated every 8,000 miles. Your Authorized VW Dealer needs a grease gun with a tapered nozzle.

Upon inspection the door locks are not working properly, they should be lubricated with a few drops of oil after the plug has been removed from the access hole.

To lubricate the lock cylinder, dip the key into graphite, insert it and turn it a few times in the lock.



Engine oil

Always use a name brand oil labeled "For Service SD" or "SE" (or combination) for the engine of your Volkswagen.

Engine oils are graded according to their viscosity. The proper grade to be used in your engine depends on existing climatic or seasonal conditions.

The following table contains the grading for oils to be used in VW engines:

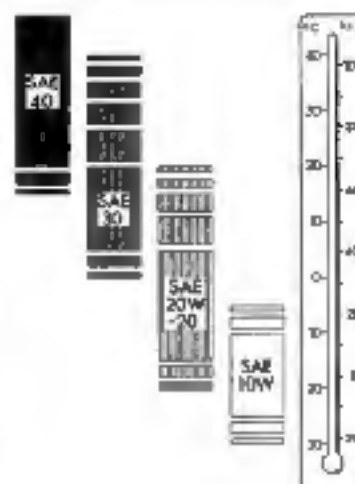
Tropical climate	Hot season		SAE 40
	Cool season		SAE 30
Moderate climate	Summer		
	Winter	At average outside temperature above 5° F	SAE 20 W-20
		At average outside temperature not lower than —13° F	SAE 10 W*

* If outside temperatures are continuously below —13° F use SAE 5 W*

* Avoid high speed long distance driving when using SAE 10 W or SAE 5 W if outside temperatures rise above the indicated limits.

As temperature ranges of the different oil grades overlap, brief variations in outside temperatures are no cause for alarm. It is also permissible to mix oil of different viscosities if you find it necessary to add oil.

Temperature ranges of SAE grades



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Transmission oil and Automatic Transmission Fluid (ATF)

Transmission and final drive are both lubricated with hypoid oil according to MIL-L-2105-B specifications (additive base, sulphur-phosphorus):

SAE 90 in general all year.

SAE 80 in areas with cold climate.

ATF in areas with arctic climate and temperatures consistently below —13° F.

ATF is a special fluid for automatic transmissions, but ATF can also be used in the Manual Transmission under the above mentioned climatic conditions.

The torque converter of the Automatic Stick Shift requires ATF all year.

All ATF's labeled "Cexon®" with a five-digit number preceded by the letter "B" can be used.

Lubricant additives

If a VW engine is properly maintained, it is uneconomical to mix any type of additive with fuel or lubricating oils and transmission fluids.

Grease

- 1 - Multi-purpose grease with a lithium base should be used for the front axle of the Volkswagen Sedan 111 and for the door hinges on all beetle-type VW models.
- 2 - Dry stick lubricant should be used for the hood locks and the sliding surfaces of the sinker plates.
- 3 - Silicone spray or petroleum jelly should be used for the battery terminals and posts.

Troubleshooting

Your Volkswagen should repay you with trouble-free driving if it receives regular maintenance.

Should you ever encounter difficulty in starting your engine or have trouble on the road, there are a few simple repairs which you can make to get your VW going again. Locate the problem and probable cause of the trouble in the guide on the following pages and follow the directions on what to do.

Exercise extreme caution when working on any part of the car to prevent accidental injury. Incomplete or improper servicing may also cause problems in the operation of the car. If in doubt about any servicing, have it done by a qualified mechanic or by your Authorized VW Dealer.

Note: The adjustment of timing and ignition timing requires special equipment and training. We suggest that you consult your Authorized VW Dealer.

Problem	Probable Cause	What To Do
VW will not start; engine will not turn over or turns over very slowly.	1. Fuel system or fuel system A. Low fuel level B. Air in fuel C. No connections behind dash board 2. Starter defective 3. The valves with automatic shut down. The gas shut down is not in manual	1. Check your engine timing 2. Make sure that all connections are tight. A. Check and cable connection on battery and grounded and of ground cable. B. Check connections at solenoid, mounted on starter, under right side of vehicle. C. Check push-on connectors behind dash board. 3. See your nearest Authorized VW Dealer. 4. Shift to Neutral
VW will not start; engine turns over	5. Loose connection in ignition system 6. Loose connection in primary circuit to coil 7. If spark is present at black coil cable, trouble is in ignition system	5. Check for loose connections at end of coil cable and spark plug. 6. Check primary connectors on coil (on black wire). Check primary connectors behind dash board. Should the engine start, ask for assistance. 7. Check in this sequence: A. Turn ignition off. Remove distributor cap and (over) check distributor contacts with soft paper (500 CMG). Make someone turn engine over with starter. Sparks should be visible between contacts. If no spark, check contact of cable connection between coil and distributor cap. Check if contact is good. If there is still no spark, see your nearest Authorized VW Dealer. B. If sparks are visible between contacts disconnect high voltage cable from cap and connection of distributor cap. With starter cranking and engine turns cable to a metal object in the engine room (e.g. gas of screws nearby). Strong strong sparks should appear. If there are no sparks, contact your nearest Authorized VW Dealer.

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Problem	Probable Cause	What To Do
VW will not start; engine turns over	8. Fuel is fairly good or plugs. Trouble is most likely in fuel system. A. Caused by improper starting procedure. If the gas pedal is depressed too often, the acceleration pump in the carburetor needs too much gas. B. Carburetor may be flooded. Fuel or choke valve may be sticking	8. If sparks appear at high voltage cable, the distributor cap should be cleaned inside and out. Remove high voltage cable. Remove all spark plugs. If plugs are clean and dry, reinserted (pushing cables in spark plugs) and having spark plug, plug covered with metal ground. Hold water with dry piece of cloth to avoid short. Sparks should appear between spark plug electrodes when the engine is turned over. If not, clean and dry ignition cables and spark plug connectors and check that ignition cables are tight in distributor cap and plug connectors. Ask for assistance if the above steps do not ensure proper ignition. 9. Dirty or wet spark plugs should be cleaned and dried. Install new plugs if necessary. Unleaded gasoline or plug electrodes increase electrode gap slightly. 10. Check fuel system in the following sequence: A. Depress gas pedal completely and operate starter for a prolonged period. If engine does not start, remove and dry spark plugs. Turn over engine with plugs removed for approx. 10 seconds. Reinsert plugs and start engine. B. Tap around outside of carburetor with wooden or plastic tool (and if wet, tap around) and try starting again as described in 8 A.
Engine stalls shortly after starting.	9. Poor fuel supply 10. Automatic choke does not close, preventing fuel supply	9. See paragraph 12 through 14. 10. Check whether choke valve is in vertical position after (automatic) has been switched on for 2-3 minutes (depending on outside temperature). Cover for choke link, cover for (1) choke cable or (2) choke in a closed position, open at last (1) and (2) and if necessary, reset with wire. See your nearest Authorized VW Dealer.
Engine stalls while vehicle is driving.	11. Defect in ignition system 12. Fuel supply is exhausted 13. Fuel lines may be clogged 14. Gasoline may be contaminated by water, dust or dirt	11. See paragraph 5 through 7. 12. Check whether the gasoline is left in tank. 13. After turning the upper part of the pump, the fuel line can be taken out by cleaning. 14. See your nearest Authorized VW Dealer for cleaning of all components of the fuel system.
Red warning light for oil pressure comes on while you are driving.	15. If light goes on, oil pressure is too low	15. Stop at once and check oil level. Add oil as necessary. If the oil level is sufficient and light goes on during driving, contact the nearest Authorized VW Dealer before driving on.
Red warning light for alternator and cooling comes on while you are driving.	16. If light goes on, V belt may be broken or alternator does not charge	16. If belt drive operation without slipping, action of all necessary electrical equipment (radio, etc.) Drive to nearest VW dealer as otherwise the battery will soon run down. If belt is broken, replace it before driving on because engine cooling fan is no longer working.
Vehicle will not start; engine will not turn over.	17. Control valve is blocked out	17. Replace fuel filter (see page 41). Check cable connections. An control valve located on the left in the engine compartment.

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Owner Relations

There are more than 1500 Authorized Volkswagen Dealers in North and Central America. Their addresses and telephone numbers are listed in a booklet which is available at your VW Dealer.

Any one of these dealers is well equipped to help you with virtually all VW-related matters; and your dealer should be your primary source.

Should there be an occasion where you need further assistance, you may want to contact your area distributor. We show the addresses and telephone numbers of the VW distributors in the U.S. on the next page.

However, remember that ultimately your questions will be resolved in the dealership with dealer personnel and dealer equipment. We therefore suggest you contact your dealer first.

For quick reference, always include chassis number in correspondence.



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Addresses of VW Distributors in the US:

Maine	Volkswagen Northeastern Distributor, Inc.	Connecticut	World-Wide Volkswagen Corporation
Massachusetts	100 Fordham Road	New York	Greenbush Road
New Hampshire	Wilmington, Massachusetts 01887	New Jersey	Orangeburg, New York 10962
Rhode Island	(617) 658-6700		(914) 359-5000
Vermont		Washington, D.C.	Volkswagen South Atlantic Distributor, Inc.
Illinois	Volkswagen North Central Distributor, Inc.	Maryland	8300 George Palmer Highway
Iowa	3737 Lake Cook Road	North Carolina	Lanham, Maryland 20801
Minnesota	Deerfield, Illinois 60015	Tennessee (East)	(301) 577-3960
North Dakota	(312) 272-3500	Virginia	
South Dakota		West Virginia	
Wisconsin		Arizona	Volkswagen Pacific, Inc.
Kentucky	Midco, Incorporated	California (South)	11300 Playa Street
Dale	5008 Peet Road	Florida (South)	Calver City, California 90230
	Dublin, Ohio 43017	Hawaii	(213) 870-3381 or (213) 390-6225
	(614) 898-2811	Alaska	
Indiana	Import Motors Ltd., Inc.	Idaho	Flaker Motors, Inc.
Michigan	P.O. Box 2008 (2680 28th St. S.E.)	Montana	P.O. Box 225 VPR
	Detroit Rapids, Michigan 48001	Nebraska	(Farm Oak Industrial RTE 1)
	(313) 938-7788	Oregon	Hillsboro, Oregon 97123
		Washington	(503) 645-5611
Florida	Volkswagen Southeastern Distributor, Inc.	Arkansas	Volkswagen Mid-America, Inc.
Georgia	155 East 21st Street	Missouri	8825 Page Boulevard
South Carolina	Jacksonville, Florida 32209	Kansas	St. Louis, Missouri 63114
	(904) 358-1684	Nebraska	(314) 429-2141
Delaware	Volkswagen Atlantic, Inc.	Colorado	Volkswagen South Central Distributor, Inc.
Pennsylvania	1001 South Trooper Road	New Mexico	P.O. Box 2207
	Valley Forge, Pennsylvania 18181	Utah	Ben Ardon, Texas 78585
	(215) 665-7500	Wyoming	(312) 341-8851
Alabama	International Auto Sales & Service, Inc.	California (North)	Raymond C. Johnson Company
Louisiana	4200 Michoud Boulevard	Nevada (North)	7100 Johnson Industrial Drive
Mississippi	New Orleans, Louisiana 70129	Utah	Pleasanton, California 94560
Tennessee (West)	(504) 254-1600		(415) 826-6700

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Technical data

Engine

Four cylinder, four stroke, horizontally opposed, in rear.	
Air cooling by fan, thermostat-controlled. Pressure oil feed with gear-type pump.	
Oil cooler. Mechanical fuel pump.	
Downdraft carburetor with automatic choke and accelerator pump.	
Air cleaner with load and temperature sensitive intake air pre-heating.	
Exhaust emission control system. Activated charcoal filter in the fuel system.	
Bore	3.36 in. (85.5 mm)
Stroke	2.72 in. (69 mm)
Displacement	96.6 cu. in. (1584 cc)
Compression ratio	7.9:1
Maximum output SAE net	48 hp at 4000 rpm.
Maximum torque SAE net	72.0 lb. ft. at 2000 rpm.
Valve clearance with engine cold	Intake and exhaust 0.006 in. (0.15 mm)
Fuel rating	"Regular" gasoline incl. low-lead or lead-free fuels*.
Oil consumption	U.S. — 1.7–3.4 pints per 1000 miles
* The correct fuel octane rating for your car engine is listed on a sticker on the inside of the fuel tank lid.	Metric — 0.5–1.0 liter per 1000 km
	Imp. — 1.4–2.8 pints per 1000 miles

Transmissions

Manual Transmission

Single plate, dry clutch	
Clutch pedal free play: $\frac{3}{8}$ – $\frac{1}{2}$ in. (10–20 mm)	
Full synchronized four-speed gearbox and bevel gear differential in one housing.	
Drive shafts with two constant velocity joints per shaft.	

Automatic Bike Shift

Hydrodynamic torque converter with three speed synchromesh transmission, combined with final drive in one housing.	
Drive shafts with two constant velocity joints per shaft.	